

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Service Rules for the 698-746, 747-762	)	WT Docket No. 06-150
and 777-792 MHz Bands	)	
	)	
	)	
Former Nextel Communications, Inc.	)	WT Docket No. 06-169
Upper 700 MHz Guard Band	)	
Licenses and Revisions to Part 27 of	)	
the Commission's Rules	)	
	)	
Implementing a Nationwide,	)	PS Docket No. 06-229
Broadband, Interoperable Public	)	
Safety Network in the 700 MHz	)	
Band	)	
	)	
Development of Operational, Technical and	)	WT Docket No. 96-86
Spectrum Requirements for Meeting Federal,	)	
State and Local Public Safety	)	
Communications Requirements Through the	)	
Year 2010	)	

**COMMENTS OF ERICSSON INC**

To: The Commission

Mark Racek, Director, Spectrum Policy  
Ericsson Inc  
1634 I Street, N.W., Suite 600  
Washington, D.C. 20006-4083  
Telephone: (202) 824-0102  
Facsimile: (202) 783-2206

Elisabeth H. Ross  
Birch, Horton, Bittner & Cherot  
1155 Connecticut Avenue, N.W.  
Suite 1200  
Washington, D.C. 20036  
Telephone: (202) 659-5800  
Facsimile: (202) 659-1027

May 23, 2007

## **SUMMARY**

In this proceeding, the Commission can adopt a band plan and technical rules that will maximize opportunities for nationwide deployment of affordable broadband services. The Commission should apply policies that will work in practice to achieve this goal. It should not assume a new entrant can best bring the third broadband pipe to consumers. Existing wireless carriers are well positioned to deploy broadband technologies cost effectively, by upgrading existing networks, and using technologies that have already achieved economies of scale, with lower capital investment and equipment costs. The Commission can also play an important role in the development of the broadband market by establishing frequency allocations and technical rules that keep the costs of equipment lower, for example by providing increased interference protection.

The Commission should ensure that its Upper 700 MHz Band Plan encourages synergies in operation, management, and supply of equipment between Public Safety and commercial broadband operations and maximizes overall spectrum efficiency and interference protection. The Commission should enhance its proposals by using the B Block more productively as interference protection. Specifically, by placing the B Block adjacent to the A Blocks at 746-747 MHz and 776-777 MHz, it will create a spectrum grouping that functions as a more robust guard band, while still providing sufficient spectrum for new entry. The more robust guard band will protect against: (1) interference to Public Safety narrowband operations caused by repositioning narrowband adjacent to the Commercial C Block; and (2) interference caused by equipment operating at substantially different power levels at the border between the lower and upper portions of band. Also, the Commission should adopt more flexible technical and operational

rules for the A+B Block, so that licensees can use the spectrum more efficiently for low-power commercial services, and broadband services.

The Commission should extend the power limit rule changes it adopted for commercial services to Public Safety. The rule changes will give Public Safety the opportunity to deploy rural services more economically and to use globally-standardized Commercial-Off-the-Shelf Equipment designed to meet commercial power standards.

Further, the Commission should affirm its tentative conclusion to consolidate narrowband spectrum at the upper end of the Public Safety allocation and broadband spectrum at the lower end. To reflect these new groupings, the Commission should modify out-of-band emission requirements for the Upper 700 MHz Band. It should apply the more modest requirements to protect Public Safety broadband operations, while it should retain the more stringent OOBE limits to protect Public Safety narrowband operations.

Overall, the Commission's actions serve the public interest by creating a Public Safety broadband plan and promoting use of broadband technologies. Wireless providers deploying advanced technologies will certainly bring the next broadband pipe to consumers. In fact, incumbent wireless carriers deploying the 3GPP family of technologies are already bringing enhanced data capabilities, video, and mobile broadband access services to subscribers nationwide by upgrading and building on extensive GSM networks.

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**COMMENTS OF ERICSSON INC**

**I. Introduction and Summary**

Ericsson Inc ("Ericsson") hereby submits comments in response to the Federal Communications Commission's ("FCC" or "Commission") Report and Order and Further Notice of Proposed Rulemaking released April 27, 2007.<sup>1</sup> Ericsson commends the

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<sup>1</sup> See *In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephones, Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services, Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules, Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010*, WT Docket No. 06-150, CC Docket No. 94-102, WT Docket No. 01-309, WT Docket No. 03-264, WT Docket No. 06-169, PS Docket No. 06-229, WT Docket No. 96-86, Report and Order and Further Notice of Proposed Rulemaking, FCC 07-72 (rel. Apr. 27, 2007) ("*700 MHz Report and Order and Further Notice*").

Commission for its prompt action resolving key issues presented in the 700 MHz proceedings and for expediting its review of remaining questions. It is critical that the Commission adhere to the DTV transition timeline so that market participants may move forward with investments and a market will develop.

The stakes are very high. The Commission sees the 700 MHz auction as the single most important opportunity to achieve nationwide deployment of affordable broadband services, especially in rural areas.<sup>2</sup> The Commission is right. Yet, there are different ways to achieve this goal that, in practice, may make it more likely to fulfill.

In particular, Chairman Martin suggests that the country needs a *new* competitor to bring the third broadband pipe to consumers,<sup>3</sup> and that the Coalition for 4G in America (“Coalition”) members are the only parties that have promised to try to provide a national wireless broadband alternative.<sup>4</sup> The Commission’s lead band plan proposal creates a 22 MHz C Block, in response to a single claim that a 22 MHz size block is needed to support new entry.<sup>5</sup> However, the record shows that allocating an overly large 22 MHz block is unnecessary and, instead, diverts the use of the spectrum away from frequency arrangements that could actually lower the technical requirements for the broadband technologies, and thereby lower the cost to consumers.

The suggestion that only a new entrant can make wireless a third pipe for broadband is completely baseless. To get the full benefits for society out of broadband,

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<sup>2</sup> *See id.*, Statement of Chairman Kevin J. Martin at 1 (“Martin Statement”).

<sup>3</sup> *See id.*

<sup>4</sup> *See id.* The Commission is also considering the Media Access Project’s proposal to limit 700 MHz licenses to companies unaffiliated with incumbents. *See 700 MHz Report and Order and Further Notice* at ¶ 221.

<sup>5</sup> *See id.* at ¶ 191.

technologies must have economies of scale to enable a mass-market that makes broadband affordable for everyone. Existing wireless carriers are in a very good position to provide broadband benefits to the consumer. Regulators should encourage all capable entities to develop the third broadband pipe and refrain from picking winners. Regulators can play an important role in the development of the market by establishing frequency allocations that help to minimize the cost of equipment and refrain from actions that risk discouraging such investment and innovation.

Wireless carriers, whether existing carriers or new entrants, that can offer the lowest cost of deploying advanced technologies in high-cost, sparsely populated areas will be well positioned to achieve affordable nationwide broadband service. Consequently, the Commission's decisions should not exclude existing carriers from the auction or slant spectrum allocations and band plans to advantage a specific entry artificially. Existing wireless carriers are spending billions of dollars deploying next generation broadband networks. Upgrading and extending existing networks is more cost effective than constructing new ones, particularly in rural areas. If the Commission makes decisions that favor a specific entrant or an unidentified, non-standardized technology, it will retreat from achieving a broadband policy that is cost-effective for consumers in rural areas as well as urban. Instead, it should create more regulatory certainty by establishing a band plan that addresses and minimizes interference potential.

The Commission can play an important role in the broadband market's development by establishing rules that lower the cost of equipment. Along these lines, Ericsson applauds the Commission's power limit rule changes for Commercial Services that permit use of a power spectral density ("PSD") model for defining radiated power



limits, authorize higher radiated power limits for rural areas, and permit average power level measurements. The industry has spent a number of years advocating these changes. These rule changes will lower the cost of broadband deployment in rural areas, and should certainly be extended to the broadband Public Safety spectrum and other commercial bands. The Commission can play a key role here that directly impacts the cost of deployment. It should make rule changes that afford operational flexibility and lower cost as expeditiously as possible and not rely on suppliers to resolve interference issues as this increases equipment costs and delays network deployments.

In summary:

- Private/public partnerships may provide the necessary economic model to operate and construct a nationwide, interoperable Public Safety broadband network.
- If it adopts a public/private partnership model, the Commission must establish complete terms and conditions (including service rules) prior to the auction, consistent with licensees' needs, without impacting the established auction date;
- The Commission should not restrict existing providers of broadband services, (e.g., rural ILECs, cable providers, and wireless carriers) from the auction or limit their participation. They are positioned well to deploy services in the 700 MHz band due to their economies of scale, technical expertise, and existing infrastructure which can be easily upgraded;
- It is expected that Public Safety will benefit from deploying globally standardized COTs equipment; therefore the Commission should extend its changes to the power limit rules to Public Safety to ensure the same opportunities it has afforded commercial licenses;
- The Commission should extend its rule changes permitting use of a Power Spectral Density model and average power measurements to the Advanced Wireless Services band;
- The Commission should enhance its Upper 700 MHz band plan proposals by:

- Using the B Block Guard Band spectrum in conjunction with the A Block Guard Band to create a 2x3 MHz spectrum block that functions as a robust guard band to protect against interference risks clearly identified in the record; and
  - Adopting more flexible technical and operational rules for the resulting A+B Block Guard Band so that the licensees can use spectrum more efficiently for low-power commercial services; with combined 3 MHz, licensees have sufficient spectrum to provide broadband services.
- The Commission should affirm its tentative conclusion to consolidate narrowband spectrum at the upper end of the Public Safety allocation and broadband spectrum at the lower end; and
  - The Commission should modify the out-of-band emission requirements (“OOBE”) for the commercial spectrum adjacent to the Public Safety Block, but retain the more stringent OOBE limits for the Public Safety broadband block to protect Public Safety narrowband operations.

Overall, the Commission’s actions serve the public interest by creating a Public Safety broadband plan and promoting use of broadband technologies. Third-Generation broadband is certainly the proper technology to bring a third broadband “pipe” to consumers throughout the U.S. The Commission should follow a balanced approach to provide the greatest opportunity for affordable nationwide broadband deployment. Ericsson is fully committed to supplying the Public Safety broadband network, including partnerships, with commercial-off-the-shelf technologies (“COTs”) and 700 MHz Long Term Evolution (“LTE”) systems, equipment and services.

## **II. Existing Wireless Carriers and New Entrants, Using Technologies with Already-Achieved Economies of Scale, Will be Well Positioned to Provide the Third Broadband Pipe Cost-Effectively to Consumers**

### **A. The Commission Should Not Assume That Only a New Entrant Can Bring A Third Broadband Pipe**

Existing carriers, and in particular, carriers using the 3GPP technology family (the next generation of GSM advanced technologies, High Speed Packet Access (“HSPA”),

HSPA-Evolved (“HSPA-E”) and Long Term Evolution (“LTE”)) are well positioned to bring the third broadband pipe to consumers cost effectively. New entrants can also be well positioned to enter the market at lower cost, if they take advantage of these technologies that have already achieved economies of scale, and cost efficiencies. If the Commission structures its band plan and auction rules to favor only new entrants, it will disregard incumbent wireless carriers’ proven track record and ability to deliver broadband nationwide more economically.

The Commission applauds wireless carriers’ growth and innovation in its *Order*. The Commission finds that the wireless market has changed substantially over the past several years.<sup>6</sup> It reports that many innovative wireless services and technologies have emerged, while at the same time prices have fallen, to the benefit of consumers.<sup>7</sup> It notes that subscribership has grown by 100 million in the last five years,<sup>8</sup> and that growth in the demand for and the provision of wireless broadband services has been unprecedented.<sup>9</sup>

Nevertheless, the Commission suggests that Americans need a *new entrant* to provide the third broadband pipe. As Chairman Martin states:

The most important step we can take to provide affordable broadband to all Americans is to facilitate the deployment of a third “pipe” into the home. We need a real third broadband competitor. And we need a technology that is cost-effective to deploy not just in the big cities, but in the rural areas, as well. All Americans

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<sup>6</sup> See *id.* at ¶ 3.

<sup>7</sup> See *id.*

<sup>8</sup> During the past five years, the number of new mobile telephone subscribers rose by more than 100 million, from 118.4 million in June 2001 to 219.4 million in June 2006. This represents an 85% increase in the total number of subscribers. See CTIA’s *Semi-Annual Wireless Industry Survey, January 1985-December 2006*, at 4. 2006. CTIA – The Wireless Association®. 23 May 2007 < [http://files.ctia.org/pdf/CTIA\\_Survey\\_Year\\_End\\_2006\\_Graphics.pdf](http://files.ctia.org/pdf/CTIA_Survey_Year_End_2006_Graphics.pdf)>.

<sup>9</sup> See *id.*

should enjoy the benefits of broadband competition – availability, high speeds, and low prices.<sup>10</sup>

Ericsson agrees with Chairman Martin, that the 700 MHz auction presents the single most important opportunity to achieve full nationwide broadband deployment.<sup>11</sup> Depending on how the Commission structures the upcoming auction, it will either enable the emergence of a third broadband pipe – one that would be available to rural as well as urban American – or it will “miss our biggest opportunity.”<sup>12</sup>

However, the suggestion that only a new entrant can make wireless a “third pipe” for broadband is not supported. Existing wireless carriers – some affiliated with wireline broadband providers, others not – are investing billions of dollars in deploying next generation broadband wireless networks and are in an excellent position to close the digital divide. To meet these challenges and the expectations of consumers, cost effective, proven and reliable solutions are a must. Technologies with proven track records, economy of scale, global reach and ecosystem of innovation will be well positioned to address these challenges in a cost-effective way.

The Commission will indeed miss its “biggest opportunity” if it structures the 700 MHz auction and band plan to favor only new entrants. For example, existing carriers using the 3GPP technologies are already bringing the third broadband pipe to subscribers nationwide. The deployment of 3GPP technologies, such as WCDMA, EDGE and HSPA, among others, has spurred a period of significant growth in the wireless market. The

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<sup>10</sup> See Martin Statement at 1. Chairman Martin also suggests that the leading technology companies are the only parties that have promised to try to provide a national, wireless broadband alternative. *Id.*

<sup>11</sup> See *id.*

<sup>12</sup> See *id.*

3GPP technology family offers cost-effective technologies that can fulfill the goal of a third broadband pipe affordably, nationwide.

### **B. The 3GPP Technologies Are Cost-Effective to Deploy Nationwide**

Chairman Martin is right, that to achieve nationwide broadband deployment, providers must rely on a technology that is cost effective to deploy not just in big cities, but in rural areas as well.<sup>13</sup> Carriers using the 3GPP technologies have been able to achieve such widespread deployment because the technologies are very cost-effective, in all respects. The technologies have already achieved economies of scale, are more economic to deploy in rural areas, and offer a number of cost and operational efficiencies, particularly compared to TDD-based technologies.

The 3GPP technology track builds on extensive GSM networks deployed today. With more than 2.4 billion subscribers, GSM is the most widely deployed wireless technology, creating a vast network foundation.<sup>14</sup> Each of the advanced technology upgrades in the GSM evolution path, EDGE, HSP, and LTE, has specific performance advantages. In addition, each upgrade is not only easily introduced into existing GSM networks, but also can be achieved in a cost-effective manner.

HSPA is already well standardized and has a significant economy of scale advantage because it is commercially operational in more than 100 networks. Other competing technologies, such as WiMAX, have been launched on a far more limited basis,<sup>15</sup> and have not achieved these cost advantages. HSPA's extensive deployment has

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<sup>13</sup> *See id.*

<sup>14</sup> Comments of 3G Americas, WT Docket No. 07-71 (filed May 7, 2007), at 2.

<sup>15</sup> The WiMAX Forum reports that it "plans to have the TTA Lab Operational in Q4 to begin receiving mobile WiMAX equipment and start the test procedure validation process. It is expected that by Q1 2007, the first commercial mobile WiMAX products will achieve the designation of WiMAX Forum Certified™, with deployment of networks to follow. Currently the WiMAX Forum's members are in the final stages of

resulted in global economies of scale, which significantly reduce the cost of both HSPA build-outs and HSPA – capable consumer devices.

HSPA has specific operational and cost efficiencies. HSPA is cost-effective to deploy in rural areas because it is based on FDD technology, in which the uplink and downlink use separate frequency channels. With TDD technology, the uplink and downlink share one frequency channel, causing discontinuous transmission reception and transmission, and lower average power. Consequently, an operator with a TDD system needs significantly more sites to achieve the same coverage (assuming the same peak device output power, frequency and data rate) because the TDD system's lower average uplink power constrains coverage. An FDD-based HSPA system requires significantly fewer sites, leading to less capital investment in equipment and sites to launch. In addition, in rural areas, HSPA's greater base station power (and six-sector antenna configurations relying on modular high-gain antennas) provides superior cost-effective performance.

In the coming years, the 3GPP technology family will continue to lead in deploying the third broadband pipe to consumers, because of its many cost-effective advantages. With HSPA, networks are well primed for the evolution to LTE, which promises even higher data rates and improved performance. If the Commission favors a new entrant over existing carriers with proven track records and economies of scale, it will risk missing opportunities existing carriers offer to achieve cost-effective nationwide broadband deployment.

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defining system profiles of mobile WiMAX equipment..." See Press Release. *WiMAX Forum Selects Korea's TTA as First WiMAX Certification Lab in Asia*. 22 Feb. 2006. WiMAX Forum. 23 May 2007 <[http://www.wimaxforum.org/news/pr/view?item\\_key=02bac231a27da057aa2523d0b4688346e3b24d74](http://www.wimaxforum.org/news/pr/view?item_key=02bac231a27da057aa2523d0b4688346e3b24d74)>.

### **III. The FCC Should Affirm Its Broadband Plan for Public Safety**

Ericsson supports the Commission's tentative conclusions that it should reconfigure Public Safety broadband spectrum to promote broadband services and spectrum efficiencies. The Commission tentatively concludes that it should redesignate Public Safety wideband spectrum for broadband use consistent with a nationwide interoperability standard, and, if it adopts this approach, consolidate existing narrowband allocations in the upper half of the 700 MHz band, and broadband communications in the lower half.<sup>16</sup> It also tentatively concludes it should establish an internal guard band<sup>17</sup> between the narrowband and broadband allocations.<sup>18</sup>

The Commission's tentative conclusions are strongly in the public interest. Modern Public Safety services will increasingly depend on advanced communications services that wireless broadband technology offers, to enable Public Safety entities to perform their vital safety-of-life and other critical roles.<sup>19</sup> As NPSTC shows, Public Safety's need for a nationwide, interoperable broadband network is imperative, and 700 MHz Public Safety spectrum is especially suitable for that purpose.<sup>20</sup> The FCC's decisions will improve spectrum efficiency and create a band plan that supports Public Safety use of broadband technologies.

The Commission should ensure that the Public Safety spectrum redesignated for broadband use supports the concept of a nationwide broadband network. It should

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<sup>16</sup> See *700 MHz Report and Order and Further Notice* at ¶ 4.

<sup>17</sup> See *id.*

<sup>18</sup> See *id.*

<sup>19</sup> See *id.*

<sup>20</sup> See *id.* at ¶ 252 (citing NPSTC Comments in RM-11348 at 4, 10).

prevent any attempt to use the spectrum inconsistent with the plan that could create another environment of fragmentation.

#### **IV. The FCC Should Extend Its Power Limit Rule Changes to Public Safety Spectrum**

Ericsson supports extending the power limit changes adopted for Commercial Services in the 700 MHz band to Public Safety broadband operations. The rule changes will give Public Safety increased operational flexibility and will also allow Public Safety to deploy operations in rural areas far more economically.

The Commission should extend use of the PSD model to Public Safety spectrum. The FCC's EIRP rule applies the same "per carrier" radiated power limit to both narrowband and broadband systems. In effect, the rule limits broadband systems to about one-fifth of the radiated power per voice conversation than a conversation transmitted over a narrowband system, assuming that each system was fully loaded and operating at the maximum power permitted by the rule.<sup>21</sup> By adding a PSD limit for Commercial Services, the Commission removed the handicap against wide emission technologies. It should grant the same operational flexibility to Public Safety so that broadband, as well as narrowband technologies, may be employed without artificial regulatory constraints.

The Commission should also extend higher EIRP limits to Public Safety. EIRP limits dictate how systems are constructed. Under the constraints of these limits, a certain number of transmitter sites are installed to cover a particular area with an acceptable signal to noise ratio, and networks are fine tuned to provide the best possible coverage. Increasing EIRP limits for Public Safety will provide additional flexibility by

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<sup>21</sup> See *id.* at ¶ 58; see also *supra* note 22.



allowing more selectivity in site locations and fewer transmitter installations where use of higher power is feasible.<sup>22</sup>

Further, the FCC should afford Public Safety the same flexibility in power level measurements as Commercial Services. Wireless technologies have used frequency or phase modulation (FM or PM) to transmit analog voice and/or tone modulation for most of the last fifty years.<sup>23</sup> These technologies' emissions have a "constant envelope" in which the peak power of emissions is equal to their average power. Some newer technologies, such as WCDMA and CDMA 2000, produce an emission where the modulation envelope is not of constant amplitude, however. In these cases, an average measurement provides more accurate and relevant information on output, and a more accurate picture of power in the band.

Public Safety should be able to deploy non-constant envelope technologies without artificial regulatory handicaps. The FCC found that the average measurement approach provides a more accurate measure of the interference potential of non-constant envelope technologies, even though using average power measurements will result in an increase in 700 MHz power levels.<sup>24</sup> On balance, the FCC found that the power increase will be modest, and will be far outweighed by the benefit of measuring today's

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<sup>22</sup> Ericsson concurs that if the FCC applies the technical interference protection restrictions adopted for 700 MHz Commercial Services Band to Public Safety broadband spectrum, it will provide additional protection to adjacent band operations.

<sup>23</sup> See *In the Matter of Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services*, WT Docket No. 03-264, Report and Order and Further Notice of Proposed Rulemaking, 20 FCC Rcd 13,900, 13,901 (2005).

<sup>24</sup> See *700 MHz Report and Order and Further Notice* at ¶ 105.

technologies using a more realistic and appropriate technique.<sup>25</sup> These findings will hold true for Public Safety operations as well.

In making these changes, the Commission should reevaluate its decision not to adopt the PSD model for defining power limits for mobile or portable stations operating in the bands.<sup>26</sup> Applying PSD to mobile and portable stations will achieve the same benefits, as applying the model to base stations. The FCC will achieve technological neutrality and ensure its rules do not promote one technology over another. By applying the same technical rules to Public Safety broadband and commercial broadband equipment, the Commission will promote synergies and economies of scale, reducing the cost of Public Safety broadband equipment. It will facilitate Public Safety's use of COTS equipment, allowing Public Safety operations to benefit from commercial efficiencies. Additionally, Public Safety broadband operations will be able to track the rapid advancements in commercial technology efficiently.

The Commission should also extend its 700 MHz rule changes that permit use of the PSD model and average power level measurements to the AWS band.<sup>27</sup> Extending the rule changes will give AWS operators increased operating flexibility, and allow for more cost effective rural deployment of AWS services. Also, the Commission can facilitate the deployment of advanced services, applications and devices by applying these same regulations in all bands appropriate for their use.

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<sup>25</sup> *See id.*

<sup>26</sup> *See id.* at n.216.

<sup>27</sup> ¶ 104

**V. The Commission Should Enhance Its Band Plans to Provide Greater Interference Protection and Spectrum Efficiency**

In its *Order*, the Commission tentatively concluded that it should not adopt the Band Optimization Plan (“BOP”), or other proposals, to the extent they proposed reallocation of commercial spectrum to Public Safety use, or the realignment of spectrum outside the bidding process.<sup>28</sup> To finalize rules, the Commission asked for comment on a number of Upper 700 MHz band plan proposals based on two options: eliminating the Guard Band B Block,<sup>29</sup> and modifying the Guard Band B Block.<sup>30</sup> It also asked for comment on specific guard band issues, including what would happen if it left the existing guard bands substantially intact.<sup>31</sup>

Ericsson evaluated the proposals based on two key objectives for this band:

- Whether the proposal maximizes synergies in operation, management and supply of equipment between the Public Safety and commercial blocks; and
- Whether the proposal addresses interference concerns on the record regarding the boundary issues at 746 MHz and 775 MHz.

The Commission’s proposals do not allocate spectrum as efficiently as possible, or maximize interference protection. Ericsson proposes that the Commission enhance its proposals by grouping the A and B Blocks together for increased interference protection.

**A. The Commission’s Proposals Based on Eliminating the B Block Guard Band Create an Unnecessarily Large Commercial Block and Provide Inadequate Interference Protection.**

The Commission made two specific band plan proposals based on eliminating the B Block Guard Band. Proposal 1 creates a paired 22 MHz Block of spectrum in a newly

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<sup>28</sup> See *id.* at ¶ 227.

<sup>29</sup> See *id.* at ¶ 184.

<sup>30</sup> See *id.* at ¶ 194.

<sup>31</sup> See *id.* at ¶ 243.

configured C Block (comprised of two 11 MHz blocks of paired spectrum) and a new 12 MHz D Block (comprised of two 6 MHz blocks of paired spectrum). Proposal 2 is similar, but allocates two 11 MHz licenses (each composed of 5.5 MHz paired blocks) – the C and D Blocks, and a 12 MHz E Block.

The Commission’s proposals to eliminate the Guard Band B Block were intended to have significant potential to maximize spectrum efficiencies. By consolidating broadband Public Safety spectrum in the lower portion of the Public Safety band, four MHz in the existing Guard Band B Block should no longer be needed to protect adjacent Public Safety users, and could be put to far more efficient and effective use.<sup>32</sup> Proposals 1 and 2 do not put the B Block spectrum to more efficient and effective use, because they create larger commercial blocks than necessary, and fail to optimize interference protection.

### **1. Proposal 1**

Proposal 1 could certainly promote synergies between commercial and Public Safety spectrum. Relocating the B Block spectrum will encourage public/private partnerships across commercial and Public Safety broadband spectrum and permit equipment to operate more easily across these two broadband allocations, especially under the same basic technical rules in both commercial and Public Safety broadband spectrum. Therefore, the FCC can apply the same technical and operational rules to the adjacent commercial spectrum and apply the more restrictive interference limits to the proposed Public Safety broadband operations, assuming the FCC assigns duplex directions.

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<sup>32</sup> See *id.* at ¶ 184.

Proposal 1 raises significant interference issues, however. The Commission originally created service rules for the Guard Bands to provide protections necessary for the existing Upper 700 MHz band plan. The Guard Bands served as a buffer between commercial and Public Safety operations and between high-site and low-site operations to reduce potential interference. Proposal 1 maintains the location of the A Block as a guard band. However, if the Commission allows licensees to offer new services in the Guard Bands, it should maintain strict technical and operational rules to prevent harmful interference to adjacent Public Safety operations. Additionally, if the Commission grandfathers the remaining B Block licenses by allowing them to continue to operate in this spectrum under current rules, the licensees' operations will interfere with D Block operations. Therefore, the Commission should facilitate clearing of the existing B Block Guard Band licenses by allowing the incumbents to include their licenses in the auction inventory in a "two-sided" auction.

Proposal 1 also does not resolve the cross-border interoperability issues adequately. The Commission notes that reconfiguring the band may result in the relocated narrowband channels being blocked by existing Canadian TV broadcasters in certain border areas.<sup>33</sup> As a temporary solution, the FCC proposes to allow in border areas, narrowband voice communications within the 1 megahertz internal guard band that is designed (under a band reconfiguration) to protect the narrowband channels from the proposed broadband channels.<sup>34</sup> Admittedly, this option will diminish available spectrum for broadband communications, since a 1 MHz internal guard band will still be necessary to protect the shifted narrowband channels from Public Safety broadband

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<sup>33</sup> See *id.* at ¶ 188.

<sup>34</sup> See *id.*

operations.<sup>35</sup> Consequently, the Commission proposes to create a temporary easement into the adjacent commercial block to facilitate the full 5 megahertz bandwidth of the proposed Public Safety broadband allocation under the band reconfiguration.<sup>36</sup>

The Commission's temporary resolution presents a number of complications. Foremost, it decreases spectrum available for broadband communications. If it creates a temporary easement in the adjacent block to enable 5 MHz bandwidth, it will significantly lower the value of the spectrum and prevent the spectrum from being used. While the FCC may view these negative impacts now as temporary, it should recognize that these decisions have an impact on realizing a third broadband pipe when the spectrum is severely encumbered. In addition, although the plan to accommodate border interoperability using an easement may be temporary, the band plan and network changes may be difficult to modify in the future. Consequently, the solution will create significant uncertainty in the band that can potentially devalue the spectrum. Additionally, the solution does not address Mexico, which still has broadcasters in the band, or the larger concern that licensees operating in the entire 698-806 MHz will have difficulty operating in certain border areas. The Commission may need to take a broader view of interoperability to include the entire 700 MHz band and continue bilateral meetings in a concerted way to relieve spectrum constraints by February, 2009.

In its commercial spectrum allocations, Proposal 1 provides an opportunity to improve interference protection. By locating the C Block next to the A Block, and allocating 1 MHz additional spectrum to the C Block, it provides an opportunity for using the extra 1 MHz of spectrum for guard band protection. Spectrum which is designated

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<sup>35</sup> *See id.*

<sup>36</sup> *See id.*

guard band has service rules to ensure that it functions as interference protection. In contrast, offsetting the licensee in the C Block can provide an *ad hoc* guard band but at a cost.

The Commission uses the 1 MHz to create an excessive C Block for commercial licensees, apparently based on 4G America's claims that a 22 MHz size block is needed for "new technologies".<sup>37</sup> The Commission said creating a 22 MHz C Block would be "responsive to the desires of *some potential new entrants, as well as many other commenters who favored a large 20 MHz block* of spectrum in the Upper 700 MHz band."<sup>38</sup> But, more precisely, it noted that the *Coalition* had advocated that it adopt a paired 22 MHz license in the Upper 700 MHz band to support new entry.<sup>39</sup> The Commission did not explain why, if the record generally supported a 20 MHz block, it proposed a 22 MHz block instead. In fact, all the comments cited by the Commission in footnote 426 said that a 20 MHz block size would support new entry.<sup>40</sup>

The Commission's technical justification for creating an excessive C Block is not clear. It has not been demonstrated that technologies expected to be deployed in the C and D block can in fact utilize the extra spectrum. WiMAX and High Speed Packet

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<sup>37</sup> See *The Coalition for 4G in America – Optimizing the 700 MHz Band for Next Generation Technologies and Networks* at 1, attached to Letter from Ruth Milkman, Counsel to Access Spectrum, L.L.C., to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 96-86, 06-150 & 06-169 (filed Apr. 4, 2007).

<sup>38</sup> See *700 MHz Report and Order and Further Notice* at ¶ 191 & n.426 (emphasis added).

<sup>39</sup> See *id.*

<sup>40</sup> See, e.g., Joint Reply Comments of DIRECTV, Inc. and EchoStar Satellite L.L.C., WT Docket Nos. 06-150, 94-102 & 01-309 (filed Oct. 20, 2006) at 7-8; Comments of Motorola, Inc., WT Docket Nos. 06-150, 94-102 & 01-309 (filed Sept. 29, 2006); Comments of QUALCOMM Incorporated, WT Docket Nos. 06-150, 94-102 & 01-309 (filed Sept. 29, 2006); Reply Comments of Verizon Wireless, WT Docket Nos. 06-150, 94-102 & 01-309 (filed Oct. 20, 2006); Comments of CTIA – The Wireless Association®, WT Docket Nos. 06-150, 94-102 & 01-309 (filed Sept. 29, 2006).

Access (“HSPA”) operate on 5 MHz channel blocks.<sup>41</sup> Also, the WiMAX Forum has concluded that a 5 MHz channel size will enable a full range of applications, and facilitate partnerships between Public Safety broadband operations and 4G commercial broadband technologies, which are also based on 5 MHz size blocks.<sup>42</sup> Globally, the various standards organizations support bandwidths in multiples of 5 MHz. To Ericsson’s knowledge, no standardized technology has been developed to take advantage of 5.5 MHz channel blocks.<sup>43</sup> Therefore, if it increases the size of the C and D Block, the Commission will allow spectrum to remain fallow. The Commission can use the B Block spectrum far more productively for increased interference protection, which will also decrease the cost of equipment.

## **2. Proposal 2**

Proposal 2 is primarily the same as Proposal 1, except that it divides the 22 MHz licenses into two 11 MHz licenses (each composed of two 5.5 MHz blocks) – the C and D Blocks. The proposal presents the same interference concerns. The Commission uses the extra spectrum for larger than necessary commercial blocks, rather than for additional interference protection.

### **B. Proposals Based on Modifying the Guard Band B Block Fail to Address Interference Concerns or Create Synergies**

The Commission made three proposals that modify the current guard bands by:

- 1) shifting the Guard Band A Block from 746-747/776-777 MHz to 762-763/792-793 MHz; 2) reducing the Guard Band B Block from 4 megahertz to 2 megahertz; and 3)

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<sup>41</sup> See Letter from Elisabeth H. Ross, Counsel to Ericsson Inc., to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 96-86, 06-150 & 06-169 (filed Apr. 13 2007), at 2.

<sup>42</sup> See *700 MHz Report and Order and Further Notice* at ¶ 256.

<sup>43</sup> See Letter from Elisabeth H. Ross, Counsel to Ericsson Inc., to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 96-86, 06-150, 06-169 (filed Mar. 21, 2007), at 3-4.



shifting the Guard Band B Block from 762-764/792-794 MHz to 775-776/805-806 MHz.<sup>44</sup> None of the proposals adequately addresses interference concerns between high and low powered operations between the Lower and Upper 700 MHz bands. Additionally, the proposals fail to create any synergies between Public Safety and Commercial broadband spectrum.

### **1. Proposal 3**

Proposal 3, Access Spectrum/Pegasus's alternative band plan,<sup>45</sup> relocates the A Block Guard Band between the Commercial D Block and Public Safety broadband spectrum at 762-763/792-793 MHz.<sup>46</sup> The proposal reduces the B Block from 4 MHz to 2 MHz and "repacks" the A Block with all current A and B Block licenses.<sup>47</sup>

Placing the A Block between Public Safety and Commercial broadband operations could actually prevent synergies in network solutions and operations. If the Commission positions Public Safety broadband spectrum adjacent to Commercial broadband operations it will not need a guard band to protect Public Safety broadband operations if these adjacent systems are deployed using similar technical rules.

This alternative proposal fails to provide adequate interference protection where it is needed most. The primary purpose of the 700 MHz Guard Bands was to create a buffer between incompatible spectrum blocks. Relocating the A Block Guard Band from 746-747 to 762-763 MHz removes protection the Commercial C Block needs to prevent interference from Lower 700 MHz Band high-powered operations. To mitigate this

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<sup>44</sup> See *700 MHz Report and Order and Further Notice* at ¶ 194.

<sup>45</sup> See Letter from Ruth Milkman, Counsel to Access Spectrum, LLC and Kathleen Wallman, Counsel to Pegasus Communications Corporation, to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 96-86, 06-150 & 06-169 (filed Apr. 18, 2007).

<sup>46</sup> See *id.* at 1-2.

<sup>47</sup> See *700 MHz Report and Order and Further Notice* at ¶ 196.

concern, the proposal assumes that the C Block licensee will be able to shift its center frequency away from the Lower 700 MHz, reducing the potential for interference. This assumed shift is not a substitute for a designated guard band which by design affords interference protection.

Specifically, the A Block is a designated guard band with strict technical and operational rules. The rules provide more regulatory certainty and help reduce the cost of deploying a network. Relocating the A Block removes the guard band separation and permits high power operations in the adjacent band to interfere with low power operations in the Upper 700 MHz band. The Commission should retain the A Block at 746 MHz as a designated guard band, rather than requiring the C Block licensees to utilize a portion of their spectrum as an internal guard band.

To address potential interference to narrowband operations in Border States, the proposal shifts the 700 MHz Public Safety spectrum down 1 MHz.<sup>48</sup> However, the harmonized use of 700 MHz spectrum in Border States is an issue for both Commercial and Public Safety use. The proposal addresses a small usage of Public Safety narrowband spectrum, but fails to address other concerns. For example, the proposal does not address whether Mexico will agree to shut down broadcast operations in the band. The Commission should make additional efforts to harmonize the entire 700 MHz, rather than make a temporary adjustment, which will be difficult to reverse later. Until border agreements are settled, Public Safety can continue to operate in its existing bands, and utilize voice and data services provided by the new Public Safety broadband network.

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<sup>48</sup> See *id.* at ¶ 196.

The Public Safety network is located in spectrum which has been harmonized between Canada and the U.S.

Additionally, if the Commission shifts the 700 MHz Band, Public Safety spectrum will overlap with the current B Block Guard Band licenses. Ericsson is concerned that any disagreement over relocating incumbent licensees will significantly disrupt Public Safety operations in the band. Any benefits of shifting the upper 700 MHz Band to allow 1 MHz of temporary interoperability are outweighed by the potential disruption of Public Safety operations.

The A Block Guard Bands' current placement provides interference protection without causing additional obstacles for Public Safety operations. In its current location, the A Block will help protect Commercial C Band operations and Public Safety Narrowband operations. The A block was located and designed to function as a guard band. Relocating the A Block will remove interference protection for the C Block and thereby reduce the value of spectrum.

## **2. Proposals 4 and 5**

The Commission's fourth and fifth proposals are similar to the third: they place the A Block Guard Band between Public Safety and Commercial broadband spectrum. The plans also propose to license the C and D Blocks as two separate 11-megahertz licenses (each as paired 5.5 MHz blocks) while incorporating Frontline's proposed 10 MHz E Block national geographic license. The fifth proposal differs only in the distribution of geographic licenses.<sup>49</sup>

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<sup>49</sup> See *id.* at ¶ 205. In these comments, Ericsson does not address differing geographic license sizes.

Similar to the third proposal, these two proposals do not provide a guard band to protect Upper 700 MHz Commercial spectrum from adjacent high-powered operations in the Lower Band. Without protection from a guard band at 746 MHz, the Commercial C Block licensees will be required to utilize a portion of their spectrum for an internal guard band. The proposals fail to allocate spectrum efficiently or provide sufficient interference protection.

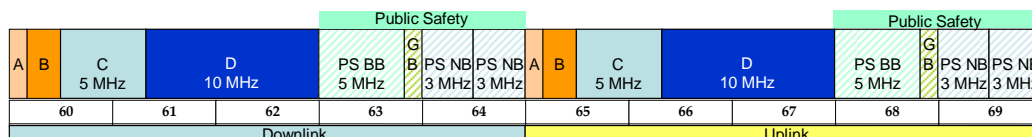
**C. The Commission Can Enhance its Proposals By Grouping the A and B Blocks Together for Increased Interference Protection**

Ericsson recommends that the Commission make changes in its proposals to improve spectrum efficiency and interference protection, and also support deployment of new technologies. By placing the B Block adjacent to the A Blocks at 746-747 MHz and 776-777 MHz, it will create a spectrum grouping that functions as a more robust guard band, while still providing sufficient spectrum for new entry.

The Commission's tentative decisions for reconfiguring the bands raise some serious interference issues. If the Commission consolidates Public Safety spectrum by placing the narrowband segment at the upper end of the block, Public Safety broadband will be located next to commercial broadband spectrum, eliminating the need for a guard band at the lower portion of Public Safety spectrum. However, there are interference risks for narrowband Public Safety operations, since the narrowband portion will be located next to the Commercial C Block. Also, the Commission's decision to retain maximum power levels of 50 kW/ERP for certain Lower 700 MHz operations, while Upper 700 MHz band operations will be subject to the current power level of 1 kW/ERP, will cause interference risks between operations at the spectrum border between the upper

and lower portions of the bands. The Commission’s proposals at best only provide a 1 MHz A Block for addressing these risks.<sup>50</sup>

Considering these clearly-identified interference risks of its plan, the Commission can best use the Guard Band B Block by placing it next to the A Block to increase guard band protection. Specifically, it should place the 2 MHz B Block adjacent to the A Blocks at 746-747 MHz (between the Lower 700 MHz C Band and the Upper 700 MHz C band) and at 776-777 MHz (between Public Safety narrowband spectrum and the Upper 700 MHz C Block) Through this means, the Commission will create a spectrum grouping that functions as a more robust guard band, while still providing sufficient spectrum for new entry. Ericsson’s recommendation to enhance the Upper 700 MHz band plan proposals is as follows:



Parties have expressed serious concerns in the record regarding interference risks that will arise between Public Safety narrowband and C Block commercial operations. For example, Verizon Wireless has provided technical evidence that the adjacent Commercial Services C Block licensees’ operations could interfere with Public Safety narrowband operations if the Commission places narrowband at the upper end of Public

<sup>50</sup> See *id.* at ¶ 190, Figure 6; *id.* at ¶ 192, Figure 7. The proposals based on modifying the Guard Bands also only allocate 1 MHz to the A Block.

Safety spectrum.<sup>51</sup> A number of other commenters have highlighted the importance of protecting Public Safety narrowband operations.<sup>52</sup> With the consolidation, commercial licensees operating in the C Block will have to utilize a portion of their spectrum for additional internal guard band protection to meet stringent co-existent technical rules and prevent interference with Public Safety.<sup>53</sup> If the Commission locates the A and B Blocks together at 776–779 MHz, it will strongly increase interference protection for narrowband operations. Commercial C Block licensees will not have to dedicate part of their spectrum for that function and as a result, the cost of deploying a network will be reduced. In addition, since solutions will likely be designed to operate across the entire commercial and Public Safety bands, the existing duplex gap will provide a number of constraints that will, at a minimum, increase the cost of the equipment. By increasing the guard band and thereby increasing the duplex gap, more opportunities will be available to serve these bands.

Generally, Public Safety has deployed networks with a single, high-powered base station to cover large service areas.<sup>54</sup> In contrast, commercial carriers typically deploy cellular systems utilizing many low-powered base stations to cover a similar area. When

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<sup>51</sup> See White Paper, *The 700 MHz Guard Bands Are Essential to Stop Potential Interference to Public Safety and Commercial Licensees*, attached to Letter from Donald C. Brittingham, Director – Spectrum Policy, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 06-169 (filed Feb. 15, 2007)(“Verizon White Paper”).

<sup>52</sup> See e.g., Motorola Comments at ii, 7, 19, WT Docket No. 06-169 (filed Oct. 23, 2006); National Public Safety Telecommunications Council Comments at 15, WT Docket Nos. 96-86 & 06-169 (filed Oct. 23, 2006); Verizon Wireless Comments at 3, WT Docket Nos. 96-86 & 06-169 (filed Oct. 23, 2006); Region 24 MHz Planning Committee Reply Comments at 5-6, WT Docket Nos. 96-86 & 06-169 (filed Nov. 13, 2006); Access Spectrum/Pegasus Reply Comments at 3-5, WT Docket Nos. 96-86 & 06-169 (filed Nov. 13, 2006).

<sup>53</sup> Comments of Ericsson Inc, WT Docket Nos. 96-86, 06-169 at 12 (Oct. 23, 2006); see also Verizon White Paper at 13.

<sup>54</sup> See Comments of Sprint Nextel Corporation, WT Docket Nos. 06-150, 94-102 & 01-309 (filed Sept. 29, 2006), at 3 (“Sprint Nextel Comments”).

a Public Safety mobile device is far from its corresponding base station, and in close proximity to a commercial cell site, “near-far” interference can occur.<sup>55</sup> Distance from the Public Safety base station is not the only determining factor. Additionally, in any location where the Public Safety signal is weak and the commercial signal is strong, there is the potential for an “interference hole.”<sup>56</sup> Interference holes pose serious problems in buildings, urban canyons, and underground.<sup>57</sup>

The risk of near-far interference is greatest where commercial operations are adjacent to the Public Safety mobile receive band. The potential for interference to Public Safety mobile receivers from commercial mobile transmitters is difficult to predict because of the inherent mobility of devices. Without a sufficient guard band, there is a significant likelihood of interference whenever Public Safety mobile devices are near a commercial mobile device.<sup>58</sup> Therefore, a robust guard band grouping at 776-779 MHz can provide important protection for Public Safety narrowband operations.

Second, as Sprint Nextel noted, the discrepancy between power levels in the Lower and Upper 700 MHz Bands creates the potential for significant interference.<sup>59</sup> The Commission intends to retain the maximum power levels of 50 kW/ERP for certain operations in the Lower 700 MHz Band.<sup>60</sup> However, operators in the Upper 700 MHz band will continue to be subject to the current power level of 1 kW/ERP. This 50:1 ratio will create significant interference issues because high-site, high-power operations will

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<sup>55</sup> Verizon White Paper at 6.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.*

<sup>58</sup> *Id.* at 8.

<sup>59</sup> Sprint Nextel Comments at 10.

<sup>60</sup> See 700 MHz Report and Order and Further Notice at ¶ 95.

be adjacent to low-site, low-power operations. Filtering technology is only effective to a point. If the Commission groups the A and B Blocks together at 776-779 MHz, it can provide significant additional protection against harmful interference.

With these concerns stated strongly in the record, the Commission should find that the highest and most efficient use of the B Block spectrum is bolstering the A Block's interference protection function. The Commission must ensure that services in commercial spectrum will not impair Public Safety operations through harmful interference, consistent with the legislative history of 47 U.S.C. §337(a).<sup>61</sup> By allocating spectrum for a robust guard band function, it will ensure its reconfigured 700 MHz band plan provides the protections that Congress intended.

**D. By Adopting Flexible Licensing Rules for the A and B Blocks, the Commission Will Enhance Their Value for Commercial Services and Encourage More Broadband Opportunities**

Allocating 6 MHz to the A and B Blocks<sup>62</sup> will increase their value for commercial services, particularly if the Commission adopts rule changes to make them more conducive to commercial operations. In the *Further Notice*, the Commission seeks comment on what it should do if it decides to leave the existing guard bands substantially intact.<sup>63</sup> It proposes granting greater operational and technical flexibility to the B Block by revising its rules regarding restrictions on cellular architectures and mandating low-site, low-power system architectures.<sup>64</sup> It notes that these initiatives could afford B Block

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<sup>61</sup> See H. CONF. REP. NO. 105-217, at 12 (1997), *reprinted at* 1997 U.S.C.C.A.N. 201.

<sup>62</sup> The A Block would consist of 1x1 MHz paired spectrum; the B Block would consist of 2x2 MHz paired spectrum.

<sup>63</sup> See *700 MHz Report and Order and Further Notice* at ¶ 243.

<sup>64</sup> See *id.*



licensees the potential to offer competitive broadband services.<sup>65</sup> It seeks comment on whether the technical flexibility it might allow for the B Block would also be possible in the A Block.<sup>66</sup> It also asks whether low-site, low-power system architectures are technically feasible for the Upper Guard Bands A Block adjacent to Public Safety spectrum.<sup>67</sup>

The Commission can greatly enhance the value of A and B Blocks if it grants licensees technical and operational flexibility, including application of its Secondary Market rules, and consider removal of any cellular architecture restrictions. As long as the A+B Blocks continue to function as a guard band, the Commission should consider allowing low-site, low-power architectures. Indeed, if the Commission places the 2 MHz B Block adjacent to the A Blocks as Ericsson proposes, it will give licensees more spectrum for providing low power commercial services. Ericsson recommends that the Commission auction the B Block spectrum with allowances for aggregation with the A Block. The Commission can facilitate aggregation by allowing B Block licensees to include their licenses in a “two-sided” auction and by applying Secondary Market rules to the B Block.

Combining 6 MHz of paired spectrum in the A and B Blocks will give licensees greater potential to expand broadband operations. A and B Block Licensees will be able to combine sufficient spectrum to offer broadband services, in addition to fulfilling the interference protection functions of guard bands. Additionally, placing the A and the B Blocks next to commercial spectrum will increase their value by creating a large

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<sup>65</sup> *See id.*

<sup>66</sup> *See id.* at ¶ 245.

<sup>67</sup> *See id.*

contiguous block of spectrum suitable for some broadband deployment. For example, with the flexible rules outlined above, operators could combine A and B Block spectrum to offer broadband services compatible with those of Commercial C Block operations. Licensees may then enter into partnerships with Commercial licensees or lease spectrum through the Commission's Secondary Markets regime, expanding the range of potential broadband services in the Band.

### **III. The Commission Should Modify its OOB Limits for the Upper 700 MHz Band**

The Commission asked for comment on whether it should revise the out-of-band emissions ("OOB") limits for Upper 700 MHz Commercial Services Band base stations to protect Public Safety operations in the band if the Commission adopts its tentative conclusion to consolidate the 700 MHz Public Safety spectrum.<sup>68</sup> The Commission should modify its OOB limits to make them consistent with limits applicable to operations between the 700 MHz Commercial broadband blocks, while retaining the more stringent OOB limits for the Public Safety narrowband spectrum.

If the Commission consolidates the Public Safety spectrum, it will eliminate the need for the more stringent OOB limits to protect Public Safety broadband operations. Consolidating the Public Safety spectrum will place the broadband portion adjacent to the D Block commercial broadband, thereby placing like services together. Therefore, as noted by Access Spectrum *et. al.*,<sup>69</sup> the Commission can apply the more liberal OOB

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<sup>68</sup> See *id.* at ¶ 258.

<sup>69</sup> See Comments of Access Spectrum, LLC, Columbia Capital III, LLC, Pegasus Communications Corporation and Telecom Ventures, LLC, WT Docket Nos. 06-150, 94-102 & 01-309 (filed Sept. 29, 2006), at 22-34 & App. B at 13-14.

limit employed to protect 700 MHz Commercial Services Band broadband systems ( $43 + \log(P)$  dB).<sup>70</sup>

Applying the more liberal limits will have multiple benefits. Public Safety broadband equipment will be able to operate under the same OOB limits as Commercial D Block equipment, creating opportunities for synergies and economies of scale. Further, the cost of commercial D Block equipment can be reduced because the equipment will not longer need to meet the current more stringent OOB limits.

However, the more stringent OOB limits will still be necessary to protect Public Safety narrowband operations. If the Commission consolidates the Public Safety spectrum, the narrowband operations will be adjacent to Public Safety broadband and the Commercial C Block. Because of the potential OOB interference from adjacent, non-compatible services, the more stringent OOB limits will be necessary. Ericsson recommends that the Commission retain the more stringent attenuation of  $76 + 10 \log(P)$  dB limit in a 6.25 kHz band segment on all frequencies between 770 MHz to 776 MHz and 800 MHz to 806 MHz, for base and fixed stations to protect the Public Safety narrowband spectrum. On all frequencies between 770 MHz to 776 MHz and 800 MHz to 806 MHz, attenuation shall be not less than  $65 + 10 \log(P)$  dB in a 6.25 kHz band segment for mobile and portable stations.

#### **IV. Conclusion**

The 700 MHz spectrum presents a rare opportunity for existing and new commercial entrants to provide wireless broadband services to both urban and rural America. Since the spectrum may facilitate a third broadband pipe into the home, the

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<sup>70</sup> See 47 C.F.R. § 27.53(c)(1)-(2)(2006).

FCC should construct rules governing the spectrum very carefully to ensure that wireless can be a viable option. To help such a market develop, the Commission should establish a band plan that can achieve economies of scale. In this way, broadband will become affordable in less served areas.

As a primary goal, the regulations should remove the uncertainty in the band, particularly concerning whether spectrum blocks are sufficiently protected from interference. Interference risks have a negative impact because they increase the cost of network deployment and worse, delay network build-outs and upgrades.

In its comments, Ericsson addresses a perception that only new entrants can provide a wireless broadband pipe into the home. Although new entrants can certainly provide broadband access to the consumer in 700 MHz, existing carriers can and will provide broadband services as well. Providers will be best positioned to deliver a third broadband pipe to consumers, if they can take advantage of economies of scale to reduce network and equipment costs. New and existing carriers using 3GPP technologies will be particularly well positioned to provide services. These technologies were designed for cost-effective implementation, and already have a proven track record for affordable deployment.

A nationwide broadband network for Public Safety using COTs equipment can provide much needed advanced services. The Commission may decide that a public/private partnership model will facilitate the deployment, operation and management of the network. However, restricting the ability of existing carriers to participate in the auction will eliminate some of the strongest elements needed to establish such a partnership.

Respectfully submitted this 23<sup>rd</sup> day of May, 2007.

Mark Racek, Director, Spectrum Policy  
Ericsson Inc  
1634 I Street, N.W., Suite 600  
Washington D.C. 20006-4083  
Telephone: (202) 824-0102  
Facsimile: (202) 783-2206

Elisabeth H. Ross  
Devin L. Crock  
Birch Horton, Bittner & Cherot  
1155 Connecticut Avenue, N.W.  
Suite 1200  
Washington, D.C. 20036  
Telephone: (202) 659-5800  
Facsimile: (202) 659-1027